

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Shin et al.

Application No.: 10/045,625

Confirmation No.: 1053

Filed: November 07, 2001

Art Unit: 2616

For: METHOD AND SYSTEM FOR
INTEGRATING PACKET TYPE
INFORMATION WITH
SYNCHRONIZATION SYMBOLS

Examiner: Steven Nguyen

APPELLANT'S BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This brief is in furtherance of the Notice of Appeal, filed in this case on August 6, 2007.

The fees required under 37 C.F.R. § 41.20(b)(2) and any required petition for extension of time for filing this brief and fees therefore are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37:

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I. REAL PARTY IN INTEREST

The real party of interest is Silicon Image, Inc.

II. RELATED APPEALS AND INTERFERENCES

The appellant, the appellant's legal representative, and the real party in interest are unaware of any appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 24 claims pending in the application.

B. Current Status of Claims

1. Claims canceled: None.
2. Claims withdrawn from consideration but not canceled: None.
3. Claims pending: 1-24.
4. Claims allowed: None.
5. Claims rejected: 1-24.

C. Claims On Appeal

The claims on appeal are claims 1-24.

IV. STATUS OF AMENDMENTS

The appellant has not filed any amendments after the last Office Action of April 6, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter is directed to a method and device for transmitting synchronization symbols that include an indication of a type of packet to be transmitted after the synchronization symbol.

Independent claim 1:

Independent claim 1 is directed to a method for transmitting packet types of packets. The method receives a packet having symbols, and identifies a packet type of the packet. The method transmits a synchronization symbol that corresponds to the identified packet type. The synchronization symbol provides synchronization information, and each packet type has a different synchronization symbol. The method then transmits the symbols of the received packet.

Support may be found, for example, in paragraphs [0094], [0095], [0099] and Figure 9A of the specification.

Independent claim 9:

Independent claim 9 is directed to a method for identifying packet types of packets of symbols. The method receives a synchronization symbol indicating a packet type, where each packet type has a different synchronization symbol. The method receives a packet of symbols, and indicates that the received packet of symbols has the packet type of the received synchronization symbol.

Support may be found, for example, in paragraphs [0094], [0095], [0097], [0098] and Figure 9A of the specification

Independent claim 16:

Independent claim 16 is directed to a communications device for transmitting packet types of packets. The device includes an identification component that identifies

a packet type of a packet of symbols. The device also includes a transmission component that transmits a synchronization symbol that corresponds to the identified packet type. The synchronization symbol provides synchronization information. Each packet type has a different synchronization symbol. The transmission component also transmits the symbols of the packet.

Support may be found, for example, in paragraphs [0094], [00101], [00102] and Figure 9C of the specification.

VI. GROUNDS OF REJECTION TO BE REVIEWED UPON APPEAL

A. The Examiner's Rejections

Claims 9-15 stand rejected under 35 U.S.C. 102(b) in view of U.S. Patent No. 5,703,875 to Burnett. Claims 1-8 and 16-24 stand rejected under 35 U.S.C. 103(a) in view of U.S. Patent No. 5,703,875 to Burnett and U.S. Patent No. 6,172,990 to Deb et al.

B. The Issues on Appeal

There are two grounds of rejection to be reviewed on appeal:

1. Whether Burnett discloses synchronization symbols that correspond and/or indicate a packet type of a transmitted packet.
2. Whether the combination of Burnett and Deb disclose synchronization symbols that correspond and/or indicate a packet type of a transmitted packet.

VII. ARGUMENTS

A. Rejections under 35 U.S.C. § 102(b)

1. Legal requirements for anticipation

35 U.S.C. § 102(b) provides:

A person shall be entitled to a patent unless (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

As noted by the Federal Circuit, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

2. The Burnett Reference

Burnett is directed to an integrated control and data message network that contains a "switch for communicating short control messages and longer data messages" (Burnett at Abstract). As disclosed in Burnett:

...when data is sent over a link 23c, e.g., from a first switch 10a to a second switch 10b (or from a sender 21 to a switch 10a), it is necessary to inform the receiving switch 10b whether control message words or data message words are being transmitted. Various approaches may be used to accomplish this. One approach is for the first switch 10a to send a state control word to the second switch when the first switch 10a is about to begin sending a message. The state control word indicates to the second switch 10b which FIFO buffer 12, 13 to store the input words into... (Burnett at 2: 40-49, emphasis added).

Thus, Burnett discloses that a "state control word" is used in the control and data message network to indicate in which buffer to store data and control messages.

3. Claims 9-16: Burnett does not teach each and every element of the claims

Claims 9-16 are taken as a group for the purposes of this appeal¹

Independent claim 9 (and dependent claims 10-16) recites a method for identifying packet types of packets, comprising, *inter alia*:

"receiving a synchronization symbol indicating a packet type,
each packet type having a different synchronization symbol."

Burnett does not disclose synchronization symbols that correspond to (or indicate) packet types. Instead, Burnett discloses a "state control word." The Office Action incorrectly equates the state control word disclosed by Burnett with the synchronization symbol as recited in claim 9. For example, at paragraph 7, the Office Action asserts "see col. 2, lines 40 to col. 3, lines 35, state control word used to synchronize the state of transmitting/receiving between the sender and receiver in order to store the information at the receiver." This is incorrect. The "state control words" disclosed by Burnett are used to "signal the start and end of a message" (Burnett at 3: 20-21) and to specify whether data or control message words are being transmitted. The state control words are not used for synchronization, i.e., the coordination of events in time². Indeed, Burnett discloses that a "clock signal may be sent along with the data, or other self-clocking schemes may be employed" (Burnett 3: 42-44). The sending of a

¹ The appellant has grouped the claims to simplify issues on appeal. The appellant, however, does not admit that the claims in any group stand or fall together for purposes other than this appeal. In particular, the appellant reserves the right to argue the patentability of each claim separately in a subsequent action, such as reopened prosecution or litigation.

² The appellant's specification provides an example of synchronization at Paragraph [0094]: "A synchronization signal is typically used by the physical layer to help ensure correct alignment of symbols. A transmitting communications node periodically transmits synchronization primitives so that the receiving communications node can properly align with that synchronization primitive. When a communications node receives a synchronization primitive, it knows that the primitive is correctly aligned on a symbol boundary. The use of multiple synchronization primitives allows for encoding packet type within a synchronization primitive."

clock signal obviates the need to perform any synchronization with the state control words.

Thus, a "state control word," as intended by Burnett, is transmitted by the first switch to instruct the second switch into which buffer subsequently transmitted packets are to be stored and to signal the start and end of a message. There is no indication or suggestion in Burnett that the state control words disclosed by Burnett are involved in any synchronization. Instead, Burnett discloses other mechanisms (e.g., transmission of a clock signal) that perform synchronization.

Thus, Burnett does not teach each and every element of independent claim 9. For at least these reasons, claim 9 and dependent claims 10-16 are patentable over Burnett.

B. Rejections under 35 U.S.C. § 103(a)

1. Legal requirements for obviousness

35 U.S.C. § 103(a) provides:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 U.S.P.Q. 459 (1966), stated:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin

of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.

The recent Supreme Court decision in *KSR Int'l v. Teleflex, Inc.*, 550 U.S. ____ (2007) reaffirmed the holdings of *Graham*, and clarified several aspects of the manner in which obviousness should be determined. *KSR*, p. 11. First, "the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results," but "when the prior art teaches away from combining certain elements, discovery of a successful means of combining them is more likely to be nonobvious." *KSR*, p. 12. Second, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art," rather, "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, p. 14-15. The Court recognizes that many significant advances will combine familiar elements: "inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *KSR*, p. 15.

Following the decision in *KSR*, the USPTO issued a memorandum to all Examiners. The memorandum directs Examiners to continue to determine why a person of ordinary skill in the art would make the combination, "in formulating a rejection under 35 U.S.C. 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." "Supreme Court decision on *KSR Int'l v. Teleflex, Inc.*," May 3, 2007, p. 2.

Additionally, *KSR* instructs that "one of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims" *KSR*, p. 16.

2. The applied references

Deb discloses a media access control micro-RISC stream processor, including methods for "processing packet data received from a physical layer" (Deb at Abstract). Deb seeks to address the "need for methods and apparatuses for media access control layer processing that is well suited to increase transmit and receive packet processing rates while reducing a host CPU's processing burden" (Deb at 3: 55-60).

As described above, Burnett discloses an integrated control and data message network that contains a "switch for communicating short control messages and longer data messages" and uses "state control words" to indicate the start and end of a transmission of either control messages or data messages (Burnett at Abstract).

3. Claims 1-8, 16-24: The combination of Burnett and Deb does not teach each and every element of the claims

Claims 1-8 and 16-24 are taken as a group for the purposes of this appeal.

Independent claim 1 stands rejected over Deb and Burnett. Claim 1 recites a method for transmitting packet types of packets, comprising, *inter alia*:

...transmitting a synchronization symbol that corresponds to the identified packet type, wherein the transmitted synchronization symbol provides synchronization information and wherein each packet type has a different synchronization symbol.

Similarly, independent claim 16 recites a communications device for transmitting packet types of packets, comprising, *inter alia*:

...a transmission component that transmits a synchronization symbol that corresponds to the identified packet type, the transmitted synchronization symbol providing synchronization information and each packet type having a different synchronization symbol, and that transmits the symbols of the packet.

Both independent claims describe transmitting or receiving one or more synchronization symbol(s) that correspond to an identified packet type. As described above, Burnett does not disclose transmitting or receiving synchronization symbols that

correspond to packet type. Deb also does not disclose synchronization symbols that correspond to (or indicate) packet types. Instead, Deb is concerned with methods of processing packet data received from a physical layer, including "appending [a] data structure to packet data before the packet is streamed to the upper layer" (Deb at Abstract). Deb does not disclose any techniques related to synchronization. In fact, there is no instance of the words "synchronization," "sync" or "clock" in the disclosure of Deb.

Thus, because each reference individually fails to disclose or suggest the transmission of a synchronization symbol that corresponds to a packet type, it is impossible for the combination of references to disclose or suggest transmitting or receiving a synchronization symbol that corresponds to a packet type. Each of the appellant's claims recites features that relate synchronization symbols with packet types. Therefore, for at least these reasons, the appellant respectfully submits that claims 1-8 and 16-24 are patentable over the combination of Burnett and Deb.

4. Claims 1-8, 16-24: There is no suggestion or motivation to combine reference teachings

Furthermore, there is no teaching or suggestion in the references or the prior art that would motivate one of ordinary skill to combine the Deb and Burnett references. The Office Action, at paragraph 6, asserts that "Since, a method for identifying a type of packet is well know and expected in the art. Therefore, it would have been obvious to one or ordinary skill in the art to apply a method for identifying a type of packet as disclosed by Deb into Burnett's system and method. The motivation would have been to reduce delay time when transmitting a packet from source to destination." The appellant respectfully disagrees.

First, the system of Deb does not attempt to reduce delay time in transmitting a packet from source to destination. The system of Deb attempts to reduce the processing time once packets are received. Thus, the motivation asserted by the Office

Action is incorrect and one of ordinary skill in the art would not look to Deb for that purpose.

Second, Burnett clearly teaches away from such a combination. As described above, Burnett discloses a system that sends "state control words" before transmitting data to a switch that instructs the switch to transmit the data into different buffers according to indicators within the state control words. That is, the system of Burnett does not lack a mechanism for identifying received packet data, as packets are stored in buffers according to type as identified within the state control words. Thus, any additional component from Deb would be unnecessary.

Additionally, the combination of Deb and Burnett addresses neither the problem solved by the appellant's claimed technology, nor the solution. For example, paragraph [0094] of the appellant's specification discloses: "The time needed to transmit a packet through the switching network may be longer than the time needed to store the data of the packet in a memory-based data store device. The rapid detection of packet type through a synchronization primitive, rather than through a packet header, can reduce the processing time of a switch." There is no disclosure in Burnett that processing time within a switch is burdensome to Burnett's system. Similarly, Deb is also not concerned with processing time through a switch. Instead, Deb is concerned with the processing of packet reception in a physical layer. The combination of Burnett and Deb discloses neither the claimed subject matter nor any problems addressed by the claimed subject matter. Thus, according to page 16 of KSR, the claimed subject matter would not be obvious over the combination of Burnett and Deb, because there was not a "known problem for which there was an obvious solution encompassed by the patent's claims."

Therefore, the appellant contends that there is no suggestion in the cited references, or knowledge in the art, that would motivate one of ordinary skill in the art to combine Deb and Burnett. For at least these reasons, the appellant respectfully asserts that claims 1-8 and 16-24 are patentable over the combination of references. The

appellant respectfully requests that the Examiner's rejections under 35 U.S.C. § 103 be reversed based on failure to establish a *prima facie* case of obviousness.

In sum, neither Burnett nor Deb taken alone teaches each and every element of the independent claims. Furthermore, any combination of the two references is improper, because the combination does not teach each and every element of the independent claims and one of ordinary skill in the art would not be motivated to make such a combination to arrive at the claimed technology.

VIII. CLAIMS APPENDIX

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

IX. EVIDENCE APPENDIX

The evidence appendix is attached hereto as Appendix B.

X. RELATED PROCEEDINGS APPENDIX

The related proceedings appendix is attached hereto as Appendix C.

The appellant encloses payment of all fees believed to owing in connection with this paper by charge to EFT Account SEA1PIRM. However, if additional fees are due, please charge our Deposit Account No. 50-0665, under Order No. 594728813US from which the undersigned is authorized to draw.

Dated: October 8, 2007

Respectfully submitted,

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APPENDIX A: Claims

Claims Involved in the Appeal of Application Serial No. 10/045,625

1. (Original) A method for transmitting packet types of packets, the method comprising:
 - receiving a packet having symbols;
 - identifying a packet type of the packet;
 - transmitting a synchronization symbol that corresponds to the identified packet type, wherein the transmitted synchronization symbol provides synchronization information and wherein each packet type has a different synchronization symbol; and
 - transmitting the symbols of the received packet.
2. (Original) The method of claim 1 wherein the symbols of the packet include in-band symbols and the synchronization symbols are out-of-band symbols.
3. (Original) The method of claim 2 wherein the in-band symbols are transition optimized and the out-of-band synchronization symbols are not transition optimized.
4. (Original) The method of claim 1 wherein the synchronization symbol is transmitted before transmitting the symbols of the packet.
5. (Original) The method of claim 1 wherein the packet has a header with a field that indicates packet type and the identifying of the packet type includes checking the field of the header that indicates packet type.

6. (Original) The method of claim 1 wherein the packet types include a data packet.
7. (Original) The method of claim 1 wherein the packet types include a control packet.
8. (Original) The method of claim 1 wherein the symbols are transmitted to a switch network.
9. (Original) A method for identifying packet types of packets of symbols, the method comprising:
 - receiving a synchronization symbol indicating a packet type, each packet type having a different synchronization symbol;
 - receiving a packet of symbols; and
 - indicating that the received packet of symbols has the packet type of the received synchronization symbol.
10. (Original) The method of claim 9 wherein the symbols of the packets include in-band symbols and the synchronization symbols are out-of-band symbols.
11. (Original) The method of claim 10 wherein the in-band symbols are transition optimized and the out-of-band synchronization symbols are not transition optimized.
12. (Original) The method of claim 9 wherein the synchronization symbol is received before the symbols of the packet are received.
13. (Original) The method of claim 9 wherein the packet types include a data packet.

14. (Original) The method of claim 9 wherein the packet types include a control packet.
15. (Original) The method of claim 9 wherein the symbols are received from a switch.
16. (Original) A communications device for transmitting packet types of packets, comprising:
 - an identification component that identifies a packet type of a packet of symbols; and
 - a transmission component that transmits a synchronization symbol that corresponds to the identified packet type, the transmitted synchronization symbol providing synchronization information and each packet type having a different synchronization symbol, and that transmits the symbols of the packet.
17. (Original) The communications device of claim 16 wherein the symbols of the packet include in-band symbols and the synchronization symbols are out-of-band symbols.
18. (Original) The communications device of claim 17 wherein the in-band symbols are transition optimized and the out-of-band synchronization symbols are not transition optimized.
19. (Original) The communications device of claim 16 wherein the synchronization symbol is transmitted before transmitting the symbols of the packet.

20. (Original) The communications device of claim 16 wherein the packet has a header with a field that indicates packet type and the identification component checks the field of the header that indicates packet type.
21. (Original) The communications device of claim 16 wherein the packet types include a data packet.
22. (Original) The communications device of claim 16 wherein the packet types include a control packet.
23. (Original) The communications device of claim 16 wherein the symbols are transmitted to a switch network.
24. (Original) The communications device of claim 16 wherein the communications device is part of a storage area network.

APPENDIX B: Evidence

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

APPENDIX C: Related Proceedings

There are no related proceedings.